Feeling the Heat – The Antarctic Treaty System

By Scott Davidson

Social Studies Unit Plan

Feeling the Heat: the Antarctic treaty system

The Unit's focus is on the Antarctic Treaty System and how its evolution has been important in the past and for the future preservation of Antarctica. As New Zealand's founding document is also a Treaty (The Treaty of Waitangi) and because of the close political, historical and ecological ties with Antarctica, this Unit contains essential learning about New Zealand.

Year	Level	Duration
9-10	4-5	20 hours

Strand Achievement Objectives Being Assessed: **Major:**	**Time, Continuity and Change** *How the ideas and actions of individuals and groups that have shaped the lives and experiences of people are viewed through time*			
Supporting:	**Place and Environment** *Why particular places and environments are significant for people* **Resources and Economic Activities** *Factors that influence peoples' access to resources, goods and services*			
Processes:	**Inquiry** *- Collect, process and communicate information about relationships between people and countries in Antarctic.* **Values Exploration** – *explore and analyse values* – *demonstrate how groups may share some values and agree to differ about others* **Social Decision Making** *- Identify a range of problems that can occur within the Treaty System.* *- Generate a range of possible solutions* *- Plan possible actions in relation to Treaty issues and identify the likely consequences of these actions* *- Make a choice about preferred action and justify that choice*			
Settings	Global (Antarctica)			
Perspectives	Past, current and future perspectives			
Key Concepts	Change Interaction Location Co-operation	Perception Values Beliefs Identity	Trade Supply and demand Culture	Conservation Human rights Movements

Student Learning Objectives:	- Examine factors that influence people's access to resources - Analyse and summarise information from a primary source - Create a T- Diagram - Create questions and record data for an investigation - Place features on a map - Investigate a chosen topic using a wide range of resources - Illustrate how different perspectives may effect decision making. - Take part in a classroom “Treaty” - Summarise technical language into own words - Make valid conclusions on information from a map - Create a timeline - Analyse a graph and make a generalisation from it - Create a media presentation

Bibliography

Books

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FEELING THE HEAT: THE ANTARCTIC TREATY SYSTEM

TIME	ACTIVITY	
Lesson 1	Starter- What is Antarctica? Brainstorm what class knows about the continent. Clues: Sir Edmund Hillary, weather, animals, explorers, ozone, global warming, IPY, icebergs Read out extracts from Cherry Gerard's book. What does this tell us about the place? (seasonal changes, extreme weather, dangerous) Activity 2.Whats the weather like? Show Utube footage of Antarctic weather forecast. **Resource A** What are the differences between our weather here and what it is like over there? Why does the presenter have a different perspective on cold weather than us? Show what heroic age explorers were wearing. **Resource B** Activity 2. T -diagram Title "Antarctic Clothing". Read another brief excerpt of Cherry- Gerrard. On one side place the heroic age gear from the past. Ask for 2-3 volunteers. Put them in dry cotton shirts. Put fan on them. Ask how they feel. Spray fine water on shirt, and then ask them how they feel. Put on fan, and then ask how they feel. Discuss with class how the materials used in Heroic era made comfort level very low. Read diary from modern traveller. Show them how modern technology on clothing has meant that people are more comfortable eg multiple layers, quick drying, light **Resource C** Class to fill in the other side of the T diagram Homework Using brainstorm from activity 1, class to ask 3 questions to 5 people. Aim is to see how much is known about Antarctica.	

Lesson 2	<u>Starter</u> Brief talk about the results of the homework. Who knew someone that the answers to all three questions? <u>Activity 1. - Venn diagram</u> Explanation of what a Venn diagram is and how to make one. Class make a Venn diagram of their homework results Afterwards each individual is to write a paragraph about what their Venn diagram shows them about their homework results. <u>Activity 2. Map Drawing</u> Link to previous activity about if anybody they spoke to about Antarctica knew any of the first 4 Geographic features below. Does any of the class? **Class divided into pairs** then asked to locate 5 things from atlas which they put into a handout of a blank map of Antarctica for each Student. Resource D Also put illustrations in map that got from brainstorm (e.g. ice, cold, penguins) to make it look exciting. Geographic features 1. The Antarctic Peninsular 2. South Pole 3. Antarctic Circle 4. Scott Base, Ross Sea 5. New Zealand, Australia, South Africa, Chile, Argentina	

Lessons 3-5.	<u>Internet session.</u> <u>Starter.</u> In pairs, class has 3 minutes to do a Google search on how many different topics they can find about Antarctica. Get all the results in from one pair at a time and put on the board. Discuss the range. Using the information from the previous 2 lessons and the Google search (in **pairs)** the class to research a topic which they find interesting about Antarctica. Must include why the subject is interesting to them egg Fishing – provides jobs, dangerous, extreme weather. Edmund Hillary – NZ'er, famous, first to pole, Class to research (1 lesson); make an A3 piece poster which is to be put up in the room (1 lesson). Each pair to give a 1 minute Speech on why they found the topic interesting to them. Allow time for questions from other students. Suggested topics: weather extremes, seasonal changes, animals, history, NZ in Antarctica, fishing, whaling, icebergs, clothing, food, ice, transport, environment, ozone hole, global warming, Ed Hillary, photography, science projects,	

Lesson 6	Starter. Get class to stand in a values continuum about fishing in Antarctic Waters. Discuss at different points in the continuum their viewpoint. Say that the fishing is by a poor county who need the food. Would anybody want to change their position? Ask for points of view throughout the continuum. What did we learn? What can be done to help the different needs of people? Is it fair for all parties? Class to think of other occasions of compromise (home, work, school) Activity 1 – A Treaty Link to Treaty of Waitangi. Ask what people can remember what the Maori and the Crown agreed upon and why. Antarctica is similar where the countries which signed both have **Rights and Responsibilities** Signing a class contract a) In **fours**, class has five minutes to write what their rights and responsibilities are within the school. b) Nominate someone to be the scribe. Class to share their rights and responsibilities. c) The scribe to write down what the class agrees to be their rights and responsibilities are in the school **examples of rights**: To be safe in school, to be treated fairly, to be spoken to and listened to politely, to have your learning supported not be discriminated against **examples of responsibilities** to follow school rules and behaviour code to look after the school environmentalist to respect the rights of others To complete all required school work to the best of your ability. d) Class to sign the treaty. Activity 2 Show example of newspaper headlines with their articles underneath. Discuss how many newspapers tailor article to suit their readers viewpoints .**Resource E** Class to write in their books a Newspaper article of 2-3 paragraphs discussing Class ??Signing of their treaty. Suggested ideas: main treaty points, areas of potential conflict, any disagreement, significant compromise, sketches etc	

Lesson 7	Starter. All of the following are run by multinational coalitions or organisations EXCEPT A. UN B. USA C. ANTARCTICA D. EU E. ASEAN Answer: B. USA Link back to timeline about international agreement about resolving issues. Link forward to next activity about territory claims. Activity 1. Brief introduction into the signing of the treaty. Fears that South Pole will become part of the cold war like the North Pole. Also people were worried that different countries may start a war to solve "sovereignty" issues. The Treaty signed in 1959 hoped to solve these problems. Hand out the 14 summaries of the Treaty's 14 articles **(In PAIRS)**. Each pair is to summarise the article (in their own writing) and give an example of what they think the article's purpose is. Once they have come up with a good thought-out summary they are to put on board. Class to write up the summarised Treaty articles 1 -14 in their books. Activity 2 Extension/homework 14 questions on the 14 articles.	

Lesson 8	<u>Starter.</u> Picture of Antarctica and Tokalau. What are the common links? (A: NZ has a Treaty with both Antarctica and Tokalau). **Resource F** Link back to Treaty of Waitangi over land claims. Link to next exercise about the differing sovereignty claims in Antarctica. <u>Activity 1. Map Drawing</u> Draw in outline of Antarctica. **Resource D** Class to mark where each claim is Also give place several bases with their names and what countries own them. Questions asked: How many claims are there? Are they any claims that cross over? Are there any claims not claimed? What do we notice about where claims are and where bases are? What can you tell us about where the sectors are in relation to where the countries are located? What is different about the USA and Russian bases? <u>Activity 2.</u> Students to pretend they are given the right to build a base in Antarctica. Students to say - where they would go - why - Draw a flag that would best represent their base.	

Lesson 9	Starter Satirical cartoon. **Resource G** Discuss why is important for law to change to keep up with changes. Activity 1.Timeline activity Class to do a timeline of the separate parts of the Treaty System. Discussion Points Why do you think the treaty kept changing? Who do you think benefited and were worsened with the amendments to the original treaty? Do you think a Treaty is a good way to help resolve issues? Debateable points “When we compromise everybody loses and nobody benefits” **or** “There are always ways of avoiding conflict between people” **or** “Conflict is a normal and healthy part of life”	

Lesson 10	<u>Starter.</u> Show pictures of sealing in Canada. **Resource H** Whats this person doing? Is it illegal? Should we care? What if there are many seals? Link to Antarctic situation. Crashing of population stocks caused Convention. <u>Activity 1. Has the Convention on Seals worked?</u> Put stats on board of seal numbers growth. Get class to do a bar-graph of results. Discuss with class one generalisation of graph. Class to make one of their own in their books. <u>Activity 2. Debate</u> Class to be divided into 4 groups: Sealers, Fisherman, Environmentalists, Government. Each of the four groups to be given a brief sheet on possible ideas they may want to include in their discussion about the resumption of sealing. Every student to write up at top of page “Different views on Sealing” and divide the page into 4 with each of the perspectives represented Class to discuss about topic using info given and own knowledge. After listening to each point of view class to write their interpretation of what was said. <u>Key questions</u> Do you think sealing should start up again? (2 reasons why).	

Lesson 11-12	Internet. - Importance of Krill. Activity 1. Put 10 animals up on board. Each student to copy each animal in book and research and write a brief description of a few lines **in blue** what does this species eat **in red** what eats this species Next day Activity one. Cut Outs. Class handed out small pictures of animals they conducted research on. Individually cut out and place in book then draw in pencil food web. Class to go over answers before students paste in their books. Activity 2. 10 x bodyweight activity. See how much kilos of Krill is needed to feed a penguin or a leopard seal. or a whale. If humans eat a whale, how much krill must be needed? (10 x whale) Activity 3 Class discussion Have a class discussion about the importance of krill in the Antarctic ecosystem. Why do they think that the krill fisheries are so important? Have students write paragraphs answering this question: "What might happen to the Antarctic ecosystem if krill populations decline?" Ask them to name at least five species besides krill and explain the chain of events that could occur.	

Lesson 13	Starter Put a list of things on the board which most contain oil and students have to pick them. Link of need for minerals. Show deposits of minerals in Antarctica **Resource I** Activity 1.Risk In late 70's many people wanted to start to mine in the Antarctic. However many people thought the risks were too great. Example of Exxon Valdez spill in Alaska. Going to the supermarket (risk/benefit table) Photo of potential mineral resources in Antarctica. Class to do a risk/benefit table of mining in Antarctica. Activity 2.Getting it wrong To demonstrate what happens in an oil spill, class to do an experiment that involves what sort of materials needed for a clean up and what it does to certain parts of the ecosystem.	

Lesson 14	Starter. Picture of protestors in Antarctica. **Resource J** They are protesting about mining in Antarctica. In groups of 5 to come up with catchy anti – mining slogan/chant for Antarctica. Say them in class Activity 1 Become an expert Other protests against unnecessary human interference (another picture of protests against runway) Co-op learning task Divide class into groups of 6 and then number each of the group 1-6. Each groups is to work out a what their annex means with the help of information given out about each annex Team is then broken up and put with same numbers (e.g. all the ones put together) Activity 2 Short quiz. 3 questions about the protocol (for each annex) they should be able to answer from their study. Activity 3. From questions discuss what they think the important things in the protocol. Write in books next to what annex	

Lesson 15	<u>Starter</u> Put a picture of the sinking of the Explorer this year on board **Resource J**. Class has 2-3 minutes to think of what damage this could do to the environment and how dangerous a place it is for rescue workers to save stranded people in. <u>Activity 1</u> Who should pay for the mess? Look at school rules for graffiti/vandalism/ littering etc and who is responsible. What is the punishment Class to write an imaginary annex who is responsible and why the punishment should be in the case of an pollution accident Put official annex on the board with evidence of what has actually happened? Effective? Are there any major differences between what the class wrote and what occurred in reality? <u>Activity 2.</u> Student to write a short letter to Antarctica New Zealand why people should tidy up their mess in Antarctica and what should be done to people who do not.	

Lesson 16	<u>Activity 1.</u> In a bag put enough lollies for everyone in the class plus 10 more. 1.Discuss with students that though many resources in Antarctica are renewable they renew very slowly demonstrate this by putting a lolly in the bag every minute. 2.Pass the sack round with no rules in how many lollies the students can take. 3. questions: did everybody get a lolly? Why was that? Did not the renewable resource help? 4. have students develop a plan so everyone gets a fairer share. Students to answer - what the problem was and how it was resolved. - why it was important that rules were put into place to protect rights over resources so that not one person gets all of the resources - how does Antarctica do the same thing? <u>Activity 2</u> Using the above situation, introduce the veto clause which is involved in Treaty negotiations. Link how when we need a common law for the betterment of all, a veto can be quite divisive. Case study of various issues where vetos have been used in the ATS. Should the veto clause still exist? Should not majority rule? What happens if the majority of countries wanted to allow start sealing again? Class do a mind map of the advantages and disadvantages of the veto	

Lesson 17-20	<u>Media presentations</u> Students to be put into groups of 3-4 1 lesson on what a video presentation is and some simple things they can do to make it interesting e.g. photos, maps, animation, and humour. Give an example of a good news article and discuss with class why it is effective Resource **K** **Topic** (either class's own choice or a name pulled out of a hat to get a better range of issues) of the media presentation issue will be one that will influence Antarctica in the future, and why the Antarctic Treaty System may be effected as a result.(Ozone hole, over fishing, tourism, etc force legislative measures). Possible ways that we can either stop or reduce negative change occurring or speed up or encourage positive change is required. No more than 5 minutes. Class will fill out a peer assessment form after their presentations shown in class.	

Lesson 21.	<u>Summary activities</u> <u>Activity 1: Has the Antarctic Treaty System been good for Antarctica?</u> Class to summarise what they have learnt in a "what if" chart. **What if** the Treaty Sovereignty issues were settled once and for all? **What if** the Antarctic Treaty was declared null and void? **What if** the Environmental Protocol was scrapped to make way for legislation that was mining-friendly? **What if** another Treaty was signed, this time between countries not already involved in the current Treaty? **What if**...? (you invent 2) <u>Activity 2: What will Antarctica look like in 100 years time?</u> Students to draw an illustration what they think Antarctica will look like in 100 years time. Underneath the illustration, the students are to write a caption explaining the picture e.g. we saved Antarctica by cutting carbon emissions or we polluted it by mining there.	

Teachers Notes.

These notes are an accompaniment to the Unit Plan. These are just suggestions of material or diagrams that can be used. In addition, there is a disk of photos, maps and video clips that is linked to this Unit.

Lesson 1,.There is a book called "The Worst Journey in the World," by Aspey Cherry-Gerrard. He was a member of Scott's doomed last expedition to the Antarctic, and he was the survivor who found the frozen bodies of Scott and his two companions a few miles from the depot that would have saved their lives.

But the "worst journey" described in the title is not Scott's; it is a winter journey undertaken during the Antarctic night by Cherry-Gerrard and two others. Their objective was to bring back the rare eggs of the emperor penguin.

Cherry-Gerrard and his friends suffered unspeakable physical and mental punishment during their journey. Their ordeal had a scientific rationale; the emperor penguin is one of the most backward of birds, and its eggs might hold clues to the evolution of our species. What Cherry-Gerrard discovered on his journey, however, is that it was quite possibly not worth it

Summer

> When I swung the thermometer this morning I looked and looked again, but unmistakably the temperature was above freezing point (out of the sun's direct rays) for the first time since we came down here. What this means to us nobody can conceive. We try to treat it as a huge joke, but our wretched condition might be amusing to read of it later. We are wet through, our tents are wet, our bags which are our life to us and the objects of our greatest care, are wet; the poor ponies are soaked and shivering far more than they would be ordinarily in a temperature fifty degrees lower. Our sledges—the parts that are dug out—are wet, our food is wet, everything on and around and about us is the same—wet as ourselves and our cold, clammy clothes. Water trickles down the tent poles and only forms icicles in contact with the snow floor. The warmth of our bodies has formed a snow bath in the floor for each of us to lie in. This is a nice little catchwater for stray streams to run into before they freeze. This they cannot do while a warm human lies there, so they remain liquid and the accommodating bag mops them up. When we go out to do the duties of life, fill the cooker, etc., for the next meal, dig out or feed the ponies, or anything else, we are bunged up with snow. Not the driving, sandlike snow we are used to, but great slushy flakes that run down in water immediately and stream off you. ...."[216]

Winter

> Blizzard followed blizzard, and at the beginning of July we had four days which were the thickest I have ever seen. Generally when you go out into a blizzard the drift is blown from your face and clothes, and though you cannot see your stretched-out hand, especially on a dark winter day, the wind prevents you being smothered. The wind also prevents the land, tents, hut and cases from being covered. But during this blizzard the drift drove at you in such blankets of snow, that your person was immediately blotted out, your face covered and your eyes plugged up. Gran lost himself for some time on the hill when taking the 8 a.m. observations, and Wright had difficulty in getting back from the magnetic cave. Men had narrow escapes of losing themselves, though they were but a few feet from the hut

Effects on People: ***Effects of poor diet, clothing and too much exercise on a member of Cherry Gerrards expedition, a Mr Evans.***

18th January 1912.

My God! what a day this have been for us all. I cannot describe what we really have to-day come through, no one could believe that we came through with safety, if we had only had a camera we could have obtained some photographs that would have surprised anyone living. We travelled all day with very little food as we are a day and a half overdue..... I had managed to keep behind just a small amount of biscuit and a drop of tea to liven us up to try and reach the depôt, which we reached at 11 p.m. after one of the most trying days of my life. Shall have reason to never forget the 17 and 18 of January, 1912. To-night Mr. Evans is complaining of his eyes, more trouble ahead!

20th January 1912.

We did not get away very smart to-day, but as we found the surface very soft, we decided to go on ski. Mr. Evans is still suffering with his eyes and badly, after getting his ski on we tied him on to the trace so that he could help to drag a bit,

27th January 1912.

Mr. Evans is now suffering from looseness of the bowels.

29th January 1912.

Mr. Evans is still suffering from the same complaint..... Gave him a little brandy and he is taking some chalk and opium pills to try and stop it. His legs are getting worse and we are quite certain he is suffering from scurvy, at least he is turning black and blue and several other colours as well.

3rd February 1912.

This morning we were forced to put Mr. Evans on his ski and strap him on, as he could not lift his legs. I looked at them again and found they are rapidly getting worse, things are looking serious on his part, but we have been trying to pump him up he will get through alright

8th February 1912.

Mr. Evans have passed a good deal of blood to-day, which makes things look a lot worse. I have to do nearly everything for him now

13th February 1912.

(We) decided to drop everything we can possibly do without, so we have only got our sleeping bags, cooker, and what little food and oil we have left. Our load is not much, but Mr. Evans on the sledge makes it pretty heavy work for us both.....I. We then pull the sledge alongside his bag and lift him on to it and strap him on. It is a painful piece of work and he takes it pretty well, but we can't help hurting him, as it is very awkward to lift him, the snow being soft and the light so bad, but he dont complain. The only thing we hear him grind his teeth.

18th February 1912.

I started to move Mr. Evans this morning, but he completely collapsed and fainted away. Crean was very upset and almost cried, but I told him it was no good to create a scene but put up a bold front and try to assist. I really think he thought Mr. Evans had gone, but we managed to pull him through.

The following extract is from the Diary of Lizzie Greenwood in 2003/2004.

Day 7: Saturday 6th December 2003

Today there's not a cloud in the sky and it's even warm enough to sit outside (in a puffa jacket of course!)

It's because the sea ice is always moving. The icebergs blow about in the wind - slowly thankfully!

The other thing that I'm slowly getting used to is the pace of life.

The people here don't get stressed about silly things. They are 'chilled' mentally as well as physically!

It's a big day in the summer calendar here at Rothera. The British Antarctic Survey's main ship comes in later today. It's called the James Clark Ross, after a famous Antarctic explorer.

Everyone's really excited because as well as being fitted out with lots of scientific equipment, it also carries the station's main supplies for the next 6 months.

There'll be loads of chocolate, fresh fruit, medicine, toilet roll, paper and pens - everything needed to keep the base running smoothly.

Day 5: Thursday 4th December 2003

I woke-up to another beautiful sunny day here in the Antarctic.

I'm told it's a bit colder today, 5 degrees, but it's not very windy so it feels warmer.

Those of us who are new to base have to do a special training course before we're allowed to go off base to other stations or even to go snowboarding over the hill next door.

It's pretty in depth and already I know how to inject someone with a painkilling drug, how to light and use an ancient paraffin lamp and how to put up a gigantic pyramid tent.

Day 4: Wednesday 3rd December 2003

After waking-up in the Antarctic for the first time today I can understand why everybody who comes here falls in love with the place. It is absolutely beautiful.

It's about minus 2 degrees today which for me is very cold, but the regulars here are often seen walking around in t-shirts!

My room is lovely and at the moment I'm not sharing with anyone which meant I chose the best bed - I'm on the top bunk!

I learnt to ride a skidoo - like a motorbike with skis on - which was hilarious and this afternoon we're being shown how to cook on stoves and put-up tents.

Day 3: Tuesday 2nd December 2003

But because Antarctica is the windiest place on earth, sometimes you can't fly there when you want to.

We were given the all clear at 0930 and took off at 1030 on a little red plane called a Dash-7.

I listened in to the pilots' weather report from a Chilean Antarctic base called Marsh.

It seemed the weather at Marsh wasn't good so the pilots decided we'd fly half way to Rothera and then if the weather was bad there - we'd turn around and fly back to The Falklands. Luckily for us - the weather was good and we carried on all the way to Rothera.

Lesson 7 , Activity 1– Treaty summary

Article I

Antarctica shall be used for peaceful purposes only. Prohibited is the establishment of military bases and fortifications, the carrying out of military manoeuvres, as well as the testing of any type of weapons.

The present Treaty shall not prevent the use of military personnel or equipment for scientific research or for any other peaceful purposes.

Article II]

Freedom of scientific investigation and cooperation in Antarctica shall continue

Article III
Antarctic Treaty Nations will exchange plans for their scientific programmes, scientific data will be freely available and scientists will be exchanged between expeditions where practical.

Article IV

No activities under the Treaty will affect claims to sovereignty of any part of Antarctica made by any nation. All territorial claims are put aside for the duration of the Treaty.

Article V

Any nuclear explosions in Antarctica and the disposal of radioactive waste material shall be prohibited.

Article VI

The provisions of the present Treaty shall apply to the area south of 60^{o} South latitude, including all ice shelves.

All signatories of the Treaty shall have the right to carry out any inspection of all areas of Antarctica, including all stations, installations and equipment within those areas, and all ships and aircraft at points of discharging or embarking cargoes or personnel in Antarctica,

Article VIII
Observers and exchange scientists shall be under the jurisdiction of their own country regardless of which national station they may visit. National laws do not apply to stations or areas, but only to the citizens of those countries

Article IX
Treaty nations will meet to consider ways of making the Treaty better. Attendance at these meetings shall be limited to those countries that are engaged in scientific research activity in Antarctica. Unanimous approval will be necessary for any new laws to happen.

Article X
Each of the signatories should not engage in any activity in Antarctica contrary to the principles of the Treaty.

Article XI

If any dispute arises between two or more signatories concerning the Treaty, those Parties shall consult among themselves with a view to having the dispute resolved by peaceful means.

Article XII

The Treaty may be modified at any time by unanimous agreement. After 30 years any signatory may call for a conference to review the Treaty. The Treaty may be modified at this conference by a majority decision

Article XIII

The Treaty must be legally ratified by any nation wishing to join. Any member of the United Nations may join as well as any other country invited to do so by the Treaty Nations.

Article XIV

The present Treaty, done in the English, French, Russian, and Spanish languages, each version being equally authentic.

Lesson 7, Activity 2 Questions

1. What is the main goal of the Treaty?
2. Do you think this is a good approach?
3. Out of all the articles, name your top 3 important ones.
4. Out of the following scenarios, name what article of the treaty involved.

   a) Australia tells New Zealand that their observers are not welcome any more.

   b) An Italian breaks the laws in a French base. Under who's law will the Italian be punished?

   c) New Zealand needs the military to help keep the transport on their base operating. Is this allowed?

   d) What article means that the Chileans and Argentineans can work together though they have the same land claim?

Lesson 9, activity 1. Timeline.

The international Geophysical Year 1957-58. Scientific cooperation between scientists around the world.

The Antarctic Treaty 1959. 12 signatories signed in Washington DC.

1819 – 1921 Captain Thaddeus Bellingshausen a Russian naval officer in the Vostok and Mirny circumnavigates the Antarctic, first to cross the Antarctic circle since Cook

1821. 1st known landing on continental Antarctica by American sealer Captain John Davis

1898. Adrien de Gerlache and the crew of the "Belgica" become trapped in pack ice off the Antarctic Peninsula in the first scientific expedition to the continent. They become the first to survive an Antarctic winter (involuntarily!) as their ship drifts with the ice (they didn't enjoy it)

1902 Captain Scott, UK, leads his first Antarctic expedition to reach the South Pole, with Ernest Shackleton and Edward Wilson. They are forced to turn back two months later having reached 82 degrees south, suffering from snow blindness and scurvy

1911. Norwegian Roald Amundsen leads a five man expedition that reaches the South Pole for the first time

1912 Britain's Captain Robert Falcon Scott reaches the South Pole to discover he has been beaten by Amundsen. All of the five man team (Scott, Bowers, Evans, Oates and Wilson), are to perish on the return journey only 11 miles from supply depot. Bodies are not discovered until November

1929 Richard E. Byrd and three others - US - become the first to fly over the South Pole

1935 Caroline Mikkelsen, Norway, is the first woman to set foot on Antarctica.

1958 The first successful land crossing via the South Pole

1961 The Treaty comes into effect

1923. Britain gives the administration of the Ross Dependency to New Zealand.

1908 Britain declares sovereignty over large parts of Antarctica.

1972 Convention for the Conservation of Antarctic Seals. Worries that the Treaty didn't cover the killing of seals. This law was made so seals had more protection.

1980 Convention on the Conservation of Antarctic Marine Living Resources. People were worried that too much fish was being taken from the sea without thinking what this could do to the rest of the ecosystem.

1988 Convention on the Regulation of Antarctic Mineral Resources Activities (Not in force). Designed to give guidelines in how to start mining in the Antarctic.

1964 Norwegian Sealing expedition visited Antarctica three years after the Treaty was signed

1960-70's Extensive Krill fishing in the Antarctic waters.

1991. Environmental Protocol. People worried that mining and fishing interests would cause too much harm to the environment. This law puts a halt to mining and controls people's activities in the Antarctic.

Lesson 10, activity 1

Heard Island Antarctic Fur Seal Numbers

1962/63 189

1987/88 248

2000/1 1012

2003/4 1278

Activity 2.Perspectives

Fisherman.

I have family to feed, so I need the money.

They ruin our nets

There is so many of them they take all the fish

We used to be able to shoot them to keep them down but we aren't allowed to anymore

Ive just bought this boat. The seals are taking so much fish that I cant afford it

I like the seals, I just wish here was a way we can both co-exist

Sealer

The fishing is so bad that I need to do this job.

The seals dont feel a thing.....just a tap on the head

Were doing nature a favour. Since there are so few whales these days, were keeping the natural balance.

Scientists reckon there is more seals now than there ever was.

Seals are no different to sheep. A renewable resource we can utilise every year.

I like animals too. There are so many seals that one day there will be too few fish and the seals will starve to death.

It's a great warm product to wear out in the cold

Environmentalist

We dont need to do this anymore – its barbaric

Many consumers dont like fur anymore.

Many consumers will boycott countries that are involved in sealing

If the seals population get to big, then mother nature will sort it out

Seals are an important indicator of the health of the ecosystem. Its important we dont kill them and miss important clues about our environment.

We dont need fur anymore. Synthetic material is cheaper and better.

Government.

There is not much support for sealing and we have an election coming up this year.

The country always needs to export goods – its good for the economy.

Our scientists say we can easily harvest 2-3% of the numbers and the population numbers would not be harmed

This country prides itself on it its “Green” image. If we started sealing again we would hurt this image which has taken a lot of time and money to build up.

The sealers would bring good money into some of our towns poorer areas – this would raise the living standards of everyone.

Sealing would both increase our exports in fur but may also increase the stocks of fish to catch as the seals would no longer be there to eat them.

Lesson 11-12

Researched animals:

emperor penguin, Adélie penguin, leopard seal, crabeater seal, Weddell seal, humpback whale, orca, pelagic fish, skua, plankton, krill

Lesson 13 Starter

> Air conditioners, ammonia, anti-histamines, antiseptics, artificial turf, asphalt, aspirin, balloons, bandages, boats, bottles, bras, bubble gum, butane, cameras, candles, car batteries, car bodies, carpet, cassette tapes, caulking, CDs, chewing gum, cold, combs/brushes, computers, contacts, cortisone, crayons, cream, denture adhesives, deodorant, detergents, dice, dishwashing liquid, dresses, dryers, electric blankets, electrician’s tape, fertilisers, fishing lures, fishing rods, floor wax, footballs, glues, glycerin, golf balls, guitar strings, hair, hair colouring, hair curlers, hearing aids, heart valves, heating oil, house paint, ice chests, ink, insect repellent, insulation, jet fuel, life jackets, linoleum, lip balm, lipstick, loudspeakers, medicines, mops, motor oil, motorcycle helmets, movie film, nail polish, oil filters, paddles, paint brushes, paints, parachutes, paraffin, pens, perfumes, petroleum jelly, plastic chairs, plastic cups, plastic forks, plastic wrap, plastics, plywood adhesives, refrigerators, roller-skate wheels, roofing paper, rubber bands, rubber boots, rubber cement, rubbish bags, running shoes, saccharine, seals, shirts (non-cotton), shoe polish, shoes, shower curtains, solvents, solvents, spectacles, stereos, sweaters, table tennis balls, tape recorders, telephones, tennis rackets, thermos, tights, toilet seats, toners, toothpaste, transparencies, transparent tape, TV cabinets, typewriter/computer ribbons, tyres, umbrellas, upholstery, vaporisers, vitamin capsules, volleyballs, water pipes, water skis, wax, wax paper

Lesson 13, activity 1

1To demonstrate what happens in an oil spill; fill a glass bottle two-thirds full of water. Add blue food colouring to make the "ocean."

2. Pour 1/2-inch or more of cooking oil into the bottle. This is the "oil spill."

Where does the oil congregate? (It floats on the surface)

What happens to an object (a cork) that you drop into the bottle? (It becomes coated with oil)

3. Put on the cap and shake the bottle vigorously (like storm or wave action). What happens to the oil? (Some of it mixes with the water)

4. Ask what would happen to organisms that float on the surface (sea birds, seaweeds, planktonic animals) or that need to come to the surface to breathe (whales, seals). (They'd be coated with oil.)

5. Explain that over time the water and oil mix somewhat and that some of the oil (which is heavier than this cooking oil) will sink to the bottom of the ocean.

What would happen to flounders, sea urchins, crabs, and other bottom dwellers?

6. Students have to try to clean up an oil spill before it pollutes the ocean, animals, and shoreline.

7. To a large pan of water with a sandy shoreline (mound of sand at one end), add cooking oil to simulate a spill.

8. Let each team of three to four students choose two or three different clean-up materials to test.

9. Have students make a plan for how they will use each material, then test it.

10. Discuss why their efforts worked or didn't work.

Was all the oil removed?

How well might their methods work on an actual spill?

Discuss what kinds of equipment actual oil spill clean-up personnel use (such as oil containment booms, skimmers, dispersants, oil absorbing materials, etc.) and how similar they are to items the students used.

What animals are most vulnerable to an oil spill? (Those that can't move; filter feeders like oysters, barnacles, clams; those that surface often; those that depend exclusively on marine life for their food supply.)

12. What can we as consumers do to mitigate oil spills? (Drive less, lower thermostats, use alternative forms of energy, use fewer oil-based products, demand, and be willing to pay for, safer transport mechanisms like double-hulled tankers.)

Storm Waves

Repeat this procedure but apply wave action by blowing "wind" across the surface of the water through a straw or with an electric fan. Discuss how the weather affects clean-up efforts.

Birds and Oil

Examine a bird feather. Oiliness on the feather keeps the feathers from becoming waterlogged. Notice how it can fluff up after it's handled.

Drop the feather into a pan of clean water. Does it float? Shake it off.

Allow it to dry completely. Does it still fluff up? Drop a bird feather into the pan of water and oil.

What happens to it?

Try to clean it up. Some students may use liquid detergent; others may just scrub with a toothbrush.Allow the feather to dry naturally, or dry it with a hair dryer. Does it still fluff up?

Drop it into a pan of water. Does it still float as well as it did before? These tests indicate that the feather has lost its ability to insulate, and to resist water.

Lesson 21

What if Chart

What if.....	Consequences.....